

**FABRICATION PROCESS FOR EMBEDDING OPTICAL BAND GAP STRUCTURES
IN A LOW TEMPERATURE CO-FIRED CERAMIC SUBSTRATE**

ABSTRACT

A method for embedding optical band gap (OBG) devices in a ceramic substrate (100). The method includes the step (320) of pre-forming an OBG structure (105). The OBG structure can be a micro optical electromechanical systems (MOEMS) device. Further, the OBG structure can be preformed from indium phosphide and/or indium gallium arsenide. The method also includes the step (325) of coating the OBG structure with a surface binding material (230). The surface binding material can be comprised of calcium and hexane. The ratio of the calcium to hexane can be from about 1% to 2%. At a next step (330), the OBG structure can be inserted into the ceramic substrate. A pre-fire step (335) and a sintering step (340) then can be performed on the substrate.